

## APPENDIX B-6 ADDENDUM

### SEDIMENT TRAP DESIGN DESCRIPTION

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#### Introduction

This addendum supplements the Surface Water and Sediment Trap Field Sampling Plan (FSP) for the Portland Harbor Pre-Remedial Design Investigations (PDI). The FSP details the use of sediment traps to collect suspended sediment for chemical analysis of Record of Decision Table 17 sediment analytes. Appendix B-6 includes excerpts from the Lower Willamette Group (LWG) Remedial Investigation (RI) FSP for sediment traps (Integral 2006) and describes the design and dimensions of sediment traps and methods for decontamination, deployment, and retrieval of sediment traps. This addendum provides an update to the dimensions and anchoring mechanism of the sediment traps that will be deployed at the Site. Photographs and schematics of the PDI sediment traps recently constructed for deployment in 2018 are provided as the Figure 3 series in the main FSP text. Figure 3a includes photographs, Figure 3b is a schematic of the sediment trap, and Figure 3c is the deployment setup.

#### Key Changes to Sediment Trap Design

The ST-30 model design (30 inches long, or 75 centimeters) will be used for the PDI sediment trap sampling (Figure 3a). This sediment trap is designed for seabed mounting in fluvial systems with light to medium sediment loads. The ST-30 features an oversized cluster of four glass capture tubes, an HDPE protective frame, and a helical anchor for mooring to the seabed. The sediment trap will be installed to a height of 6 inches above the mudline to place the sediment tube top ring at 36 inches above mudline; the height of the top ring is consistent with the LWG RI methods (Integral 2006) and Norton (2001).

The key changes from the description of sediment traps in Integral (2006) are as follows:

- The dimensions of each glass tube are 6 inches diameter by 30 inches long (Figure 3b). The larger volume sample tubes allow for better surface capture area and a longer tube for settling. The larger size is also less prone to biofouling. This design maintains the 5:1 height-to-width ratio recommended for sediment traps in Norton (2001).
- To provide a more stable and supportive anchoring system, the sediment traps will be fixed to the sediment floor using a helical anchoring system (Figure 3b). The helical anchor allows for higher holding power to mixed composition mudlines with a designed holding force up to 2,000 pounds (lb). The helical anchor is ideal in river systems or where vessel traffic is increased.
- The system is installed by a diver in two parts: anchor mooring and tube assembly.

- A drag/grapple line of 50 feet is also installed for retrieval with a 5 lb. pyramid weight at the extended end. Direction of placement will be noted in the field logbook. This line will be retrieved with a grappling hook. After the 5 lb. weight is retrieved onboard the vessel, the remaining slack is taken up, and the line followed to the sediment trap for retrieval. The use of a grappling line is preferred to the use of a buoy for retrieval as a buoy can potentially cause drag of the sediment trap with river flows or attract attention from public boaters who may unknowingly disturb the trap. Tube caps are provided for installation and removal by diver to protect sample from perturbation.
- The specifications for the ST-30 model are as follows:
  - Tube size: 6 inches diameter x 30 inches long
  - Glass construction
  - Overall size of trap assembly: 34 x 24 inches
  - Helical anchor size: 8 inch flange, 24 inches long

## References

- Integral. 2006. Round 3 Field Sampling Plan - Sediment Traps. Prepared by Integral for the LWG RI/FS, Portland Harbor Superfund Site, Portland Oregon for submittal and approval by EPA Region 10, Seattle, Washington. March.
- Norton D. 2001. Contaminants Associated with Settling Particulate Matter and Bottom Sediments at Two Marinas in Thea Foss Waterway. Prepared for Department of Ecology. June.